J8523

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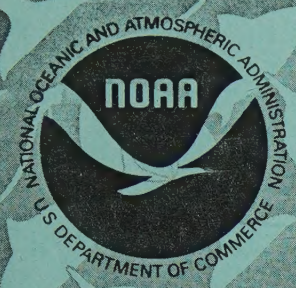

SOUTHWEST FISHERIES CENTER

NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST FISHERIES CENTER
P.O. BOX 271
LA JOLLA, CA 92038

SEPTEMBER 1985

DOCUMENTATION FOR A PINNIPED TAG AND TAG RESIGHT DATABASE

By

Jeanne Wexler

ADMINISTRATIVE REPORT LJ-85-23

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La Jolla, California 92038

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DOCUMENTATION FOR A PINNIPED TAG AND TAG RESIGHT DATABASE

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La Jolla, California 92038

INTRODUCTION

In 1982, a tag and tag resight computer database (STAGDB) for pinnipeds tagged off California was established by the National Marine Fisheries Service (NMFS) Southwest Fisheries Center (SWFC). The database includes data on pinnipeds tagged in California since 1975 by personnel associated with NMFS, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), the University of California at Santa Cruz and other private organizations, including Hubbs Marine Research Institute, the Point Reyes Bird Observatory, Moss Landing Laboratory and marine mammal rehabilitation centers. Also included in the database are data on resighted tagged animals. The database is maintained with a system that provides a standardized format for tag and tag resight data entry, computer procedures for performing quality control on these data, and procedures for easy retrieval of information for review and analyses of pinniped movements (temporal and spatial) and life history parameters.

In this report I describe the tag and tag resight information in the database, the quality control procedures, and the format and procedures involved in data entry and retrieval.

SOURCES OF TAG AND TAG RESIGHT INFORMATION

Data are received from a variety of sources (Figure 1). These include: 1) researchers employed with or contracted by NMFS; 2) various state and federal agencies including the CDFG, the USFWS and the Southwest Region (SWR); 3) rehabilitation centers; and 4) the general public. Most sources report information on tag number, color and placement, the date and area of resight or tagging, and the general health condition of the animal. This information is entered into the tag and tag resight database.

Tag and tag resight information is received by the SWFC from research personnel operating at various locations including the Farallones, Santa Barbara Island, San Clemente Island, San Miguel Island, San Nicolas Island, Santa Rosa Island and the Monterey breakwater. Information from researchers is filed with the coded forms in area-specific files. Tag resight information on animals other than those tagged in a researcher's area is filed separately under the area where the animals were originally tagged.

Tag and resight information is also received from CDFG, USFWS and SWR. CDFG sends tag information to the SWFC on dead pinnipeds tagged after recovery in gill nets set in areas offshore from California. Dead animals are released after being tagged to study movements of floating carcasses. USFWS reports information on elephant seals tagged at Cape San Martin and live pinnipeds tagged at Piedras Blancas after recovery from gill nets. Both types of tagging information are filed as "miscellaneous tagging". Subsequent resight information on these animals are filed

separately as "miscellaneous resights". The SWR provides tag resight information received from the Marine Mammal Stranding Network. After observing a tagged animal, an observer completes a Marine Mammal Data Record form (Figure 2) and returns it to the SWR. The SWR forwards a copy of this form to the SWFC. Tag resight information received from the SWR is filed by the area where the animal was tagged.

Other tag and resight information is received from six rehabilitation centers in California. These centers are the California Marine Mammal Center located in San Francisco, the Morro Bay Aquarium, the Santa Barbara Marine Mammal Center, Freinds of the Sea Lion located in Laguna Beach, Marineland in Palos Verdes, and Sea World in San Diego. These centers rehabilitate stranded animals. After the animals are treated, they are tagged and then released. Stranded animals that already have tags from other areas are also reported by rehabilitation center personnel on Marine Mammal Data Record forms (Figure 2), and these forms are sent to the SWR as part of the Marine Mammal Stranding Network. The SWR forwards this information to the SWFC. Data on animals that are tagged by rehabilitation centers are coded and filed by release date. Resights on rehabilitated-tagged pinnipeds are filed as "miscellaneous resights".

Members of the general public also submit tag resight information. Information is either recovered from dead tagged animals that have been stranded and the tags returned to the SWFC, or from live or dead animals where the tags are not returned to the SWFC. Information recovered from live or dead animals are either phoned in or received through written communication. Once this information is coded, a reply form letter (Figure 3) with information about the species type, where and when the animal was

tagged, and a brief description of our tagging program is sent to the person returning the tag and information. Tag return information and a copy of the reply letter are filed by the resight date under the area where the animal was originally tagged. A Marine Mammal Data Record (Figure 2) containing the tag return information is completed by the SWFC and sent to the SWR for their records; a copy of this record is filed separately. Tag resight information reported by persons who do not send in tags is coded and filed separately by the area where the animal was originally tagged.

Tags that are recovered but not physically attached to an animal at the time they were found are not coded or filed. Since there is no evidence that the animal which had the tag is either dead or alive, this information is omitted from the database. The frequency of occurrence for this type of tag return is minimal (<10 tag recoveries are filed).

CODING FORMAT AND EDITING

Once tag or resight data have been received, a series of steps are performed to enter the data into the database. Dependent upon the amount of data received, each data entry is coded onto one to three forms (Figures 4-6 and Appendix I) producing one to three physical records. Data is entered from the coded forms to a temporary data file. A FORTRAN-language computer edit program is used to search for questionable or unacceptable values; specifications for editing the variables are given in Appendix II. Records and variables flagged by the edit program are then reviewed and after correction, these data are archived on a database. The structure of the database is shown in Appendix III.

CURRENT STATUS

The number of records, by year and species, currently in the database is shown in Table 1. As of July 1985, the tag and tag resight database contains 11,906 tag records and 4,663 tag resight records from the period 1975-1985 (Table 2). Tag information is archived on a semiyearly basis in March for elephant seals and September for California sea lions. Tag resight information is entered into the database as it is received.

ACKNOWLEDGEMENTS

The following people from SWFC assisted in the preparation, organization and maintenance of the Tag/Tag Resight Database: Chuck Oliver designed the format structure; Jay Walker and Ken Wallace created the editing programs; and, the Data Management Group--Al Jackson, Tom Tumosa and Randy Rasmussen--as well as Lisa Ferm and Laura Wing, aided in the maintenance of the database. This paper was reviewed by SWFC personnel: Chuck Oliver, Al Coan, Al Jackson, Jean Michalski, Wes Parks and Gary Sakagawa.

Table 1. Database record totals, by year and species, where species codes are: C=Callorhinus ursinus; M=Mirounga angustirostris; P=Phoca vitulina; and Z=Zalophus californianus.

FOR: STAGDB.DAT;7
COUNTTAGS.LOG;1

30-JUL-85 17:11:08
31-JUL-85 09:22

YEAR	TAG RESIGHT	SPECIES	RECORD COUNT
75	T	Z	51
		TOTAL	51
76	T	Z	100
		TOTAL	100
77	T	Z	100
		TOTAL	100
78	T	Z	100
		TOTAL	100
79	T	Z	100
		TOTAL	100
80	T	M	64
		Z	100
		TOTAL	164
81	T	M	331
		Z	462
		TOTAL	793
	R	Z	17
		TOTAL	17
82	T	M	1937
		P	9
		Z	927
		TOTAL	2873
	R	C	1
		M	20
		Z	1106
		TOTAL	1127
83	T	M	1917
		P	9
		Z	1039
		TOTAL	2965
	R	C	1
		M	65
		P	7
		Z	1732
		TOTAL	1805
84	T	C	1
		M	2227
		P	22
		Z	830
		TOTAL	3080
	R	C	1
		M	90
		P	2
		Z	1410
		TOTAL	1503
85	T	M	1580
		TOTAL	1580
	R	M	67
		P	1
		Z	143
		TOTAL	211

TOTAL TAGS = 11906
TOTAL RESIGHTS = 4663

TABLE 2. PINNIPED TAG AND TAG RESIGHT TOTALS, BY YEAR AND SPECIES, FOR THE PERIOD 1975-1985

	1975-1984		January-July 1985	
SPECIES	TAGS	RESIGHTS	TAGS	RESIGHTS
Zalophus californianus	3,809	4,265	0	143
Mirounga angustirostris	6,476	175	1,580	67
Phoca vitulina	40	10	0	0
Callorhinus ursinus	1	3	0	0
TOTALS	10,326	4,453	1,580	210

Figure 1. Sources of Pinniped Tag and Tag Resight Information Received by the Southwest Fisheries Center

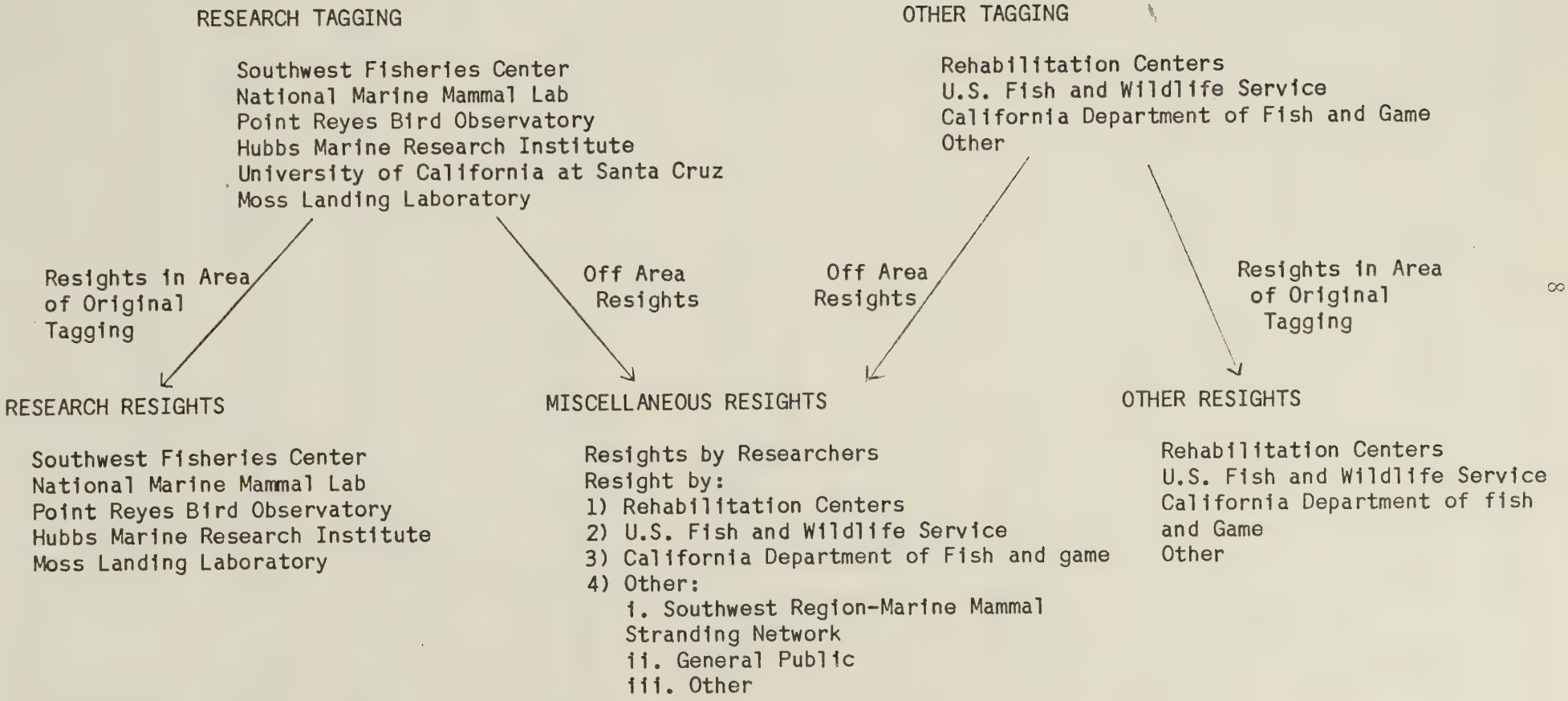


Figure 2. Marine Mammal Data Record Form for the Marine Mammal Stranding Network

MARINE MAMMAL AND MARINE TURTLE
DATA RECORD

*COMMON NAME _____

GENUS _____ SPECIES _____

*DATE OF OCCURENCE YR_____ MO_____ DAY_____ TIME_____ AM/PM
*DATE OF EXAMINATION YR._____ MO_____ DAY_____ TIME_____ AM/PM
*COUNTY _____ *TOWN OR CITY _____
LOCALITY DETAILS _____

LATITUDE/LONGITUDE _____ ° ' "N _____ ° ' "W

*TYPE OF OCCURENCE _____

*NUMBER OF ANIMALS _____
*CONDITION _____

*SEX _____

LIST TISSUES OR SKELETAL PARTS TAKEN AS VOUCHER MATERIALS: _____

PHOTOS TAKEN _____YES _____NO

LENGTH (SL)_____ CM_____ IN AGE/MATURITY_____

GIRTH _____CM_____ IN TOT.WEIGHT_____KG_____LBS
*EXAMINED BY NAME _____
ADDRESS _____
AGENCY _____ PHONE ( )

SIGNATURE _____

FIELD NO. ASSIGNED TO ANIMAL _____
*DISPOSITION (Check one): Left at site ___ Moved to secure area___ Returned to sea_____
Buried___ Freezer storage___ Euthanized___ Specimen to sci. collect___ Rendering fac___
*If taken, indicate the circumstances requiring taking _____

*Location of Placement:
1. Facility_____ Date_____
2. Facility_____ Date_____
Final Disposition_____ Date_____
*If animal retained, briefly describe care and maintenance: _____

*REPORTED BY: Name_____ Title_____
ADDRESS_____ PHONE ( )
REMARKS (DISPOSITION OF VOUCHER MATERIALS): _____

*TAGS? NO_____ YES_____ NUMBER(S)_____ COLOR_____
PLACEMENT OF TAGS: _____ TYPE:_____
SPECIAL REMARKS _____

****

Complete reports upon receipt/observation of animal and mail collectively by the 10th of

INSTRUCTION NOTES

An asterisk (*) indicates information required to be supplied to the Regional Director, National Marine Fisheries Service, Southwest Region, pursuant to 50CFR 216.22(3b).

*COMMON NAME must be the correct common name; "seal" is not acceptable. If unsure as to type of animal, note this uncertainity; use reference books to assist in ID.

LOCALITY DETAILS include the nearest named geographic feature, cape, bay, river, street address, or distance from a place, etc. Please use USGS topographic sheets, NOAA navigational charts, or maps provided in the Network Directory for place names.

LONGITUDE AND LATITUDE Should be determined as accurately as possible from marine charts.

*TYPE OF OCCURENCE includes: Sighting or stranding, single or mass strandings, human related (if shot, etc.), boat collisions, capture, incidental catch, etc.

*NUMBER is/are the number(s) of animals involved in this event.

*CONDITION should be coded as follows: 1=alive; 2=fresh dead; 2+=dead, condition unknown 3=moderately decomposed (organs still intact, but days old); 4=advanced decomposition (organs beyond recognition, carcass still intact, weeks old); 5=old carcass (skeleton remains or mummy, age indeterminate).

*SEX use "M" for male, "F" for female, "U" if unknown.

LENGTH is preferred to be taken in centimeters. If converted from feet, the original measurement should be given in REMARKS. Standard length (SL) is measured in straight line from tip of snout to tip of tail. GIRTH is measured around body immediately behind pectoral fins or foreflippers.

*EXAMINER is the person responsible for animal identification and for completing this reporting form.

*REPORTING SOURCE is the person who found the animal, not necessarily the person filling out the report (often a private citizen or local city agent).

VOUCHER MATERIALS include photos and museum or lab specimens. Give photo or catalog numbers if possible and indicate the place of disposition of these materials in REMARKS.

SPECIAL REMARKS includes any further notes on unusual circumstances, associated phenomena or animals, stomach contents, etc.

****

Samples necessary for minimum scientific use:

Cetacean-1. Stomach (freeze whole) or contents (wash thoroughly, store in ETOH only)
2. Ovaries or testes
3. Section of jaw with 6-7 teeth; 4-5 teeth, if large species; or piece of baleen.

Pinnipeds-1. One upper canine
2. Stomach (freeze) or contents (wash thoroughly, store in ETOH only)
3. Ovaries or testes

****

Figure 3. Response Form Letter for Tag Returns

Southwest Fisheries Center
P.O. Box 271
LaJolla, California 92038

&MAILDATE& F/SWC1

&SURNAME& &FIRSTNAME& &LASTNAME&
&ADDRESS&
&CITY&, &STATE& &ZIP&

Dear &SURNAME& &LASTNAME&:

Thank you for returning the tagging information to the National Marine Fisheries Service. This animal, tagged &TAGID&, is a &SPECIES& and was tagged on &TAGMONTHDAY&,&TAGYEAR& at &TAGPLACE& as a &TAGAGE&.

We are currently conducting tagging studies (on sea lions, harbor seals, elephant seals, and fur seals) on the California Channel Islands, in southern coastal areas and in northern California. With the assistance of other federal, state, and private research institutions, we are attempting to gain a better understanding of the behavior and population dynamics of the marine mammals in this area. We are able to obtain information on mortality rates, movements, and distribution of these animals through analyses of data such as you have returned.

Thank you again for your help and cooperation.

Sincerely,

Jeanne Wexler
Biological Technician
CoastalMarineMammal Program

Figure 4. Coding Form Used for Pinniped Tagging/Tag Resight Data (Card Number 1 of 3)

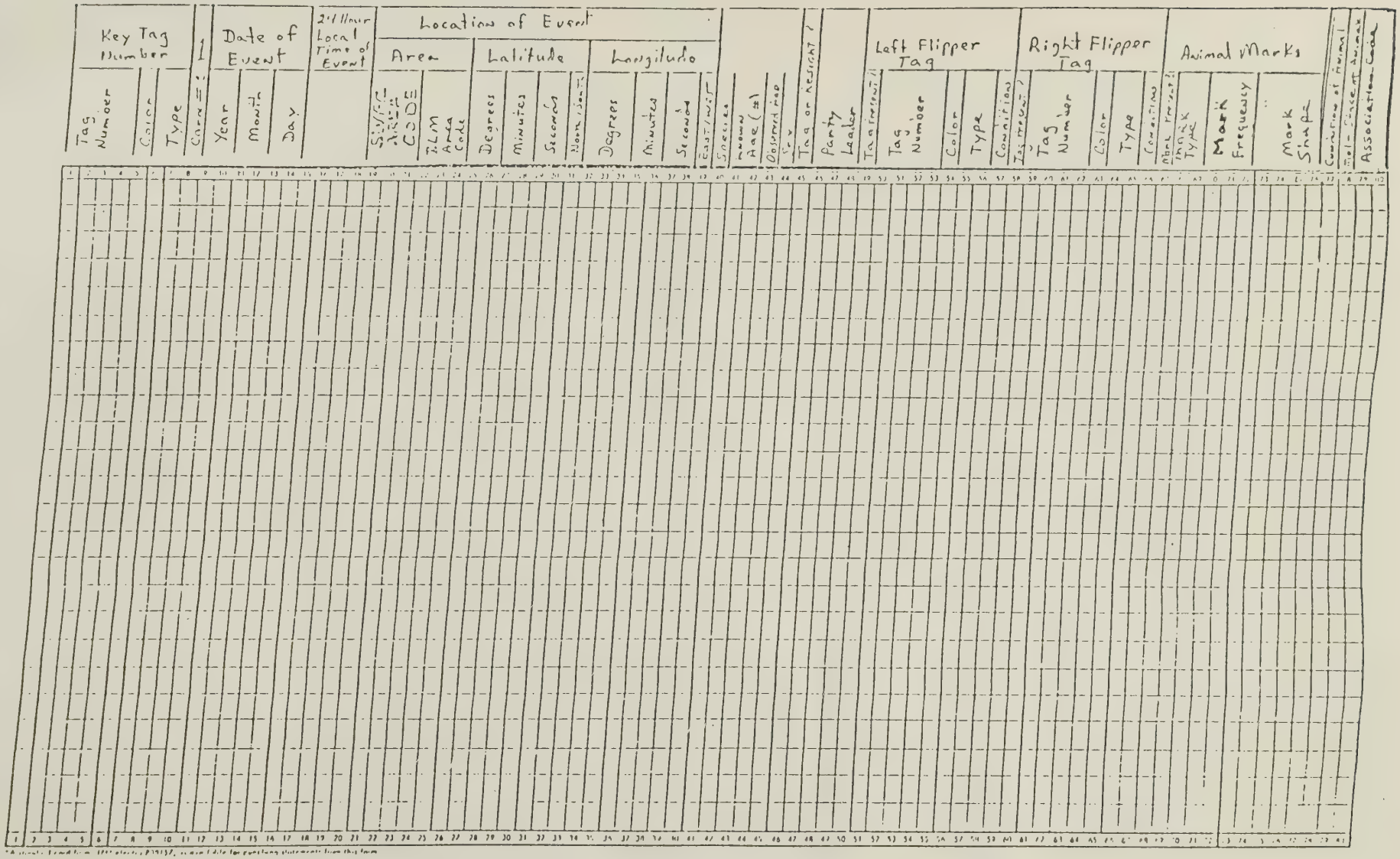
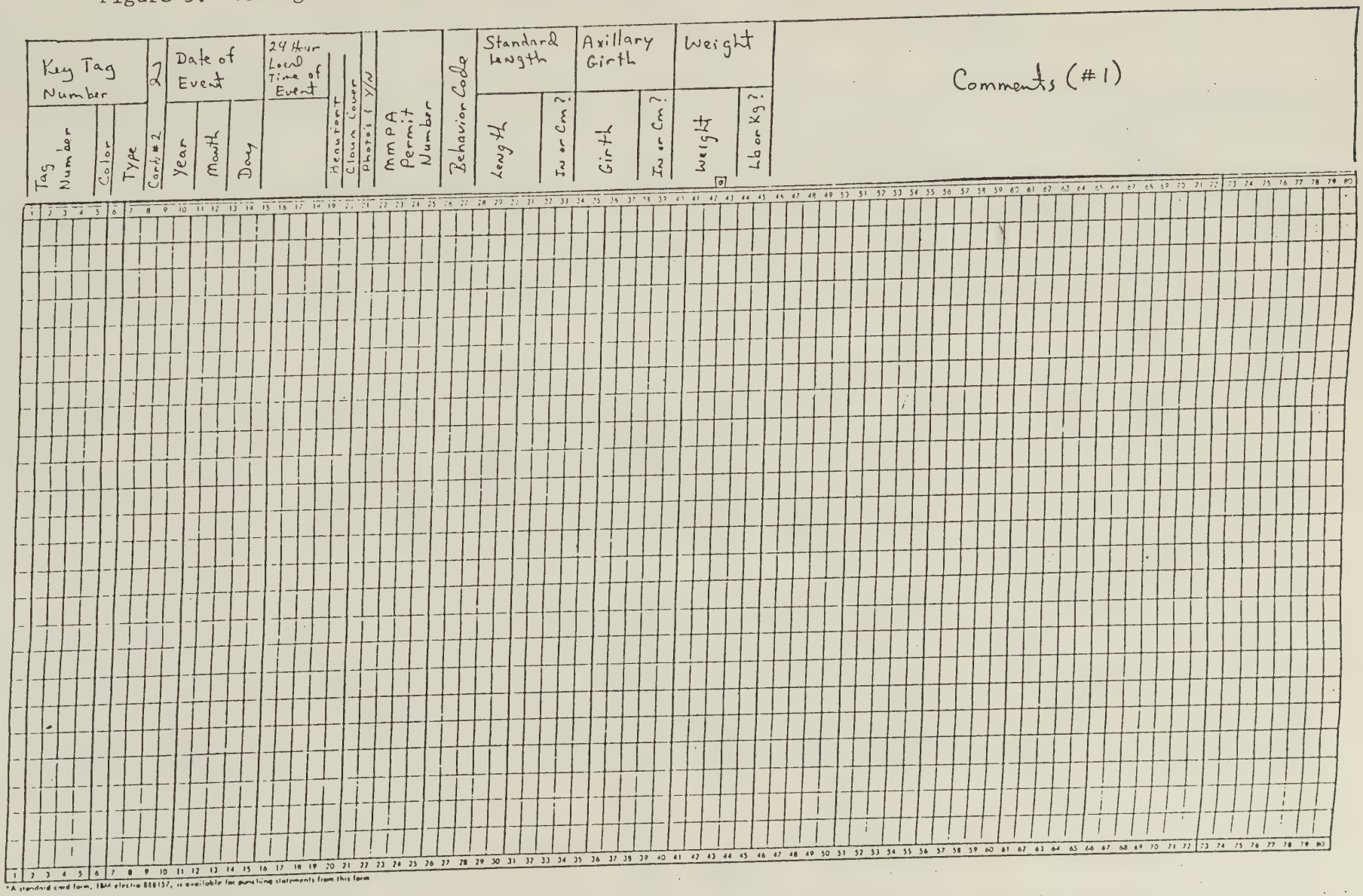
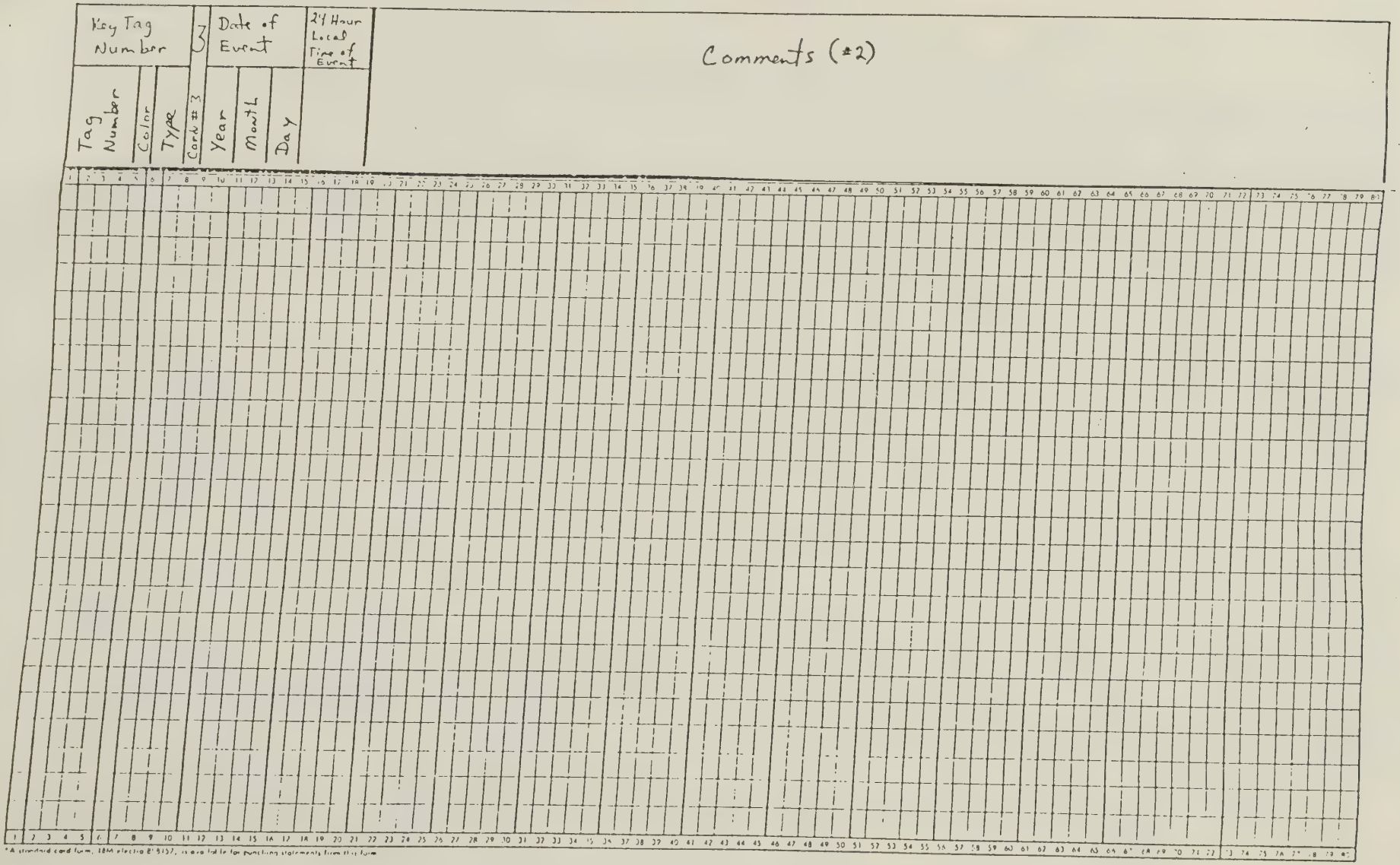


Figure 5. Coding Form Used for Pinniped Tagging/Tag Resight Data (Card Number 2 of 3)



*A standard card form, IBM electro 888137, is available for punching statements from this form

Figure 6. Coding Form Used for Pinniped Tagging/Tag Resight Data (Card Number 3 of 3)



*A standard card form, IBM electric #1857, is available for punching statements from this form.

APPENDIX I.

PINNIPED TAG/RESIGHT CODING FORMAT

May 1, 1985

Columns	Title	Explanation or Reference
Card 1		
1-4	Tag Number	The unique number used to identify the specimen. If different numbered tags are used on the same specimen, pick one as key value (Normally the right flipper tag). four digits with leading zeros or 1 alpha with 3 digits.
5	Tag Color	The code for the color of the tag number used as the key (1-4) (1 character - code table A).
6-7	Tag Type	The code for the type of tag used as the key (1-4). (2 characters code Table B).
8	Card No. 1	Thenumber of the 3-card format (1 digit-1).
9-10	Date: Year	The year the event (tag/resight) occurred (2 digits).
11-12	Date: Month	The month the event occurred (2 digits).
13-14	Date: Day	The day the event occurred (2 digits).
15-18	Time of Event	The 24 hour clock local time that the event occurred (4 digits).
	Location	
19-21	SWFC Area Code	The code value that identifies the island, ocean or mainland area where the event occurred (3 digits - code Table C).
22-24	BLM Area Code	The code value used by the Bureau of Land Management Reports to identify the area where the event occurred (3 digits - code Table D).
25-26	Latitude:	
	Degrees	The degrees of latitude (2 digits).

27-28	Minutes	The minutes of latitude (2 digits).
29-30	Seconds	The seconds of latitude (2 digits).
31	Hemisphere N/S	The code for the latitude hemisphere 1 = North; 2 = South.
	Title	
32-34	Longitude:	
	Degrees	The degrees of longitude (3 digits).
35-36	Minutes	The minutes of longitude (2 digits).
37-38	Seconds	The seconds of longitude (2 digits).
39	Hemisphere E/W	The code of the longitude hemisphere. 1 = East; 2 = West.
40	Species	The code indicating the species of pinniped (1 character - code Table E).
41-42	Known Age Class	The code indicating the known age in years of the specimen (2 digits - code Table F).
43	Observed Age Class	The code Indicating the apparent age class of the specimen (1 character - code Table G).
44	Sex	The sex of the animal (1 character). M = Male F = Female.
45	Tag/Resight	The code indicating whether this record is Tag (T) or Resight (R) (1 character).
46-48	Party Leader	The initials of the party leader or person making the observation (3 characters - code Table H). Left Justified.
	Left Flipper Tag	
49	Tag Present?	The coded answer to the question "was there a tag on the left flipper?" (1 digit). If you did not see the flipper, leave blank. Y = Yes N = No.

50-53	Left Flipper Tab Number	The number of the tag on the left flipper if seen (4 digits). Blank if flipper not seen or tag missing.
54	Left Flipper Tag Color	The code indicating the color of the tag on the left flipper if seen (1 character - code Table A). Blank if flipper not seen or tag missing.
55-56	Left Flipper Tag Type	The code indicating the type of tag on the left flipper if seen (2 characters - code Table B). Blank if flipper not seen or tag missing.
57	Left Flipper Tag Condition	The code indicating the apparent condition of the left tag if seen (1 character - code Table I). Blank if flipper not seen or tag missing.
	Right Flipper Tag	
58	Tag Present	The coded answer to the question "was there a tag on the right flipper?" (1 digit). If you did not see the flipper, leave blank. Y = Yes N = No.
59-62	Right Flipper Tag Number	The number of the tag on the right flipper if seen (4 digits). Blank if flipper not seen or tag missing.
63	Right Flipper Tag Color	The code indicating the color of the tag on the right flipper if seen (1 character - code Table A). Blank if flipper not seen or tag missing.
64-65	Right Flipper Tag Type	The code indicating the type of tag seen on the right flipper if seen (2 characters - code Table B). Blank if flipper not seen or tag missing.
66	Right Flipper Tag Condition	The code indicating the apparent condition of the right tag if seen (1 character - code Table 1). Blank if flipper not seen or tag missing.
67	Mark Present?	The coded answer to the question, "Were there other distinguishing marks placed (or seen) on the animal?" (Y = Yes; N = No). Describe in comments.

68-69	Marks Type	The coded value indicating the type of other marks placed on the animal or observed (2 characters - code Table J). Right justified.
70-72	Mark Frequency	The radio frequency used to identify this tag in KHz (3 integers digits).
73-76	Mark Shape	The alpha character or symbol used to mark this specimen (4 characters).
77	Condition of Animal	The coded value which indicates the apparent general health condition of the specimen (1 character - code Table K.)
78	Molt Stage	The coded value indicating the apparent percent of peleage in molt (1 digit - code Table M).
79-80	Association	The coded value indicating the "association," if any, of the specimen when observed (2 digit - code Table L).
Card 2		
1-4	Tag Number	The unique number used to identify the specimen. If different numbered tags are used on the same specimen pick one as the key value (normally the right flipper tag). Four digits with leading zeroes or 1 alpha and 3 digits.
5	Tag Color	The code for the color of the tag number used as the key (1-4). (1 character - code Table A).
6-7	Tag Type	The code for the type of tag used as the key (1-4).(2 characters - codeTable B).
8	Card No. 2	The number of the 3-card format.
9-10	Date: Year	The year the event (tag/resight) occurred (2 digits).
11-12	Date: Month	The month the event occurred (2 digits).
13-14	Date: Day	The day the event occurred (2 digits).
15-18	Time of Event	The 24 hour clock local time that the event occurred (4 digits).

19	Beaufort	The beaufort scale value indicating the wind/sea state at the time and approximate place of the observation (1 digit).
20	Cloud Cover	The coded valueindicating the sky condition at the time and approximate place of the observation (1 character). C= Clear S = Scattered O = Overcast R = Rain.
21	Photo's	The coded answer to the question "are photo's available of this specimen?" Y = Yes N = No.
22-25	MMPA Permit Number	The Marine Mammal Protection Act permit number issued that allows the "take" of this specimen (4 digits right justified). Needed only for initial tagging or retagging.
26-27	Behavior	Thecoded value indicating the "behavior" of the specimen when observed (2 digits - code Table N).
28-31	Standard Length	The standard length of the specimen when observed (4 integer digits).
32-33	Standard Length Units	The code indicating the units of measurement used in taking the standard length. IN = inches CM = centimeters.
34-37	Auxillary Girth	The auxillary girth of the specimen when observed (4 integer digits).
38-39	Auxillary Girth Units	The code indicating the units of measurement used in taking the auxillary girth. IN = inches CM = centimeters.
40-43	Weight	The weight of the specimen (4 integer digits with 1 implied decimal value.
44-45	Weight Units	The code indicating the units of measurement used in taking the specimens' weight. LB = pounds KG = kilograms.
46-80	Comment #1	Any comments that are attached to this observation or event (45 alpha numeric characters).

Card 3	*****	
1-4	Tag Number	The unique number used to identify the specimen. If different numbered tags are used on the same specimen, pick one as the key value (normally the right flipper tag). Four digits with leading zeroes or 1 alpha and 3 digits.
5	Tag Color	The code for the color of the tag number used as the key (1-4). (1 character - code Table A).
6-7	Tag Type	The code for the type of tag used as the key (1-4). (2 characters - code Table B).
8	Card No. 3	The number of the 3-card format.
9-10	Date: Year	The year the event (tag/resight) occurred (2 digits).
11-12	Date: Month	The month the event occurred (2 digits).
13-14	Date: Day	The day the event occurred (2 digits).
15-18	Time of Event	The 24hour clock local time that the event occurred (4 digits).
19-80	Comment	Any additional or continued comments attached to this observation or event (62 alpha numeric characters).

PINNIPED TAG/RESIGHT CODE TABLES A-N

Table A (Tag color)

B = Blue
G = Dark Green
K = Black
L = Lime Green
M = Metallic (Monel tags)
N = Brown (after February 10, 1984)
O = Orange (" " ")
P = Pink
R = Red
S = Silver
V = Violet or Purple
W = White
X = Other (light blue, orange, brown)
Y = Yellow

Table B (Tag Type)

ML = Monel
RE = Reise
RT = Jumbo Roto
TP = Templ
XX = Other

Table C (SWFC Area Codes)

001 = San Clemente Island (SCI)
002 = Santa Catalina Island (CAT)
003 = Santa Barbara Island (SBI)
004 = San Nicolas Island (SNI)
005 = Anacapa Island (ACI)
006 = Santa Cruz Island (SCZ)
007 = Santa Rosa Island (SRI)
008 = San Miguel Island (SMI)
009 = Ano Nuevo Island (ANI)
010 = Farallon Islands (FAI)
011 = San Diego - San Clemente (South)
012 = San Clemente to Newport (South)
013 = Newport to Oxnard (South)
014 = Oxnard to Pt. Arguello (South)
015 = Pt. Arguello to Morro Bay (South)
016 = Morro Bay to Monterey (South)
017 = Monterey to Golden Gate (South)
018 = Golden Gate to Tomales Bay
019 = At sea (San Diego - Pt. Conception)
020 = At sea (Pt. Conception to Tomales Bay)
021 = North of Tomales Bay
022 = Mexico
023 = Coronado Islands (after December 1984)

Table D (BLM Area Codes)

Bureau of Land Management (BLM) area codes are described in Bonnell, et al. (1978)[1] and extended further in DeMaster, et al. (1984)[2]

---

[1]Bonnell, M.L, B.J. LeBouef, M.O. Pierson, D.H. Dettman, G.D. Farrens, C.B. Heath, R.F. Gantt, and D.J. Larsen. Draft Final Report Summary of Marine Mammal and Seabird Surveys of the Southern California Bight Area 1975-1978. Vol III, Parts 1 and 2. Bureau of Land Mgmt., U.S. Dept. of Int. Contract AA550-CT7-36. Univ. of California, Santa Cruz, Santa Cruz, CA.

[2]DeMaster, D.P., R.L. DeLong, B.S. Stewart, P.K. Yochem, and G.A. Antonelis. 1984. A guide to censusing pinnipeds in the Channel Islands National Marine Sanctuary and the Channel Islands National Park. Southwest Fisheries Center, Admin. Rep. No. LJ-84-44, La Jolla

Table E (Species Code)

A = Arctocephalus townsendi
C = Callorhinus ursinus
E = Eumetopias Jubata
M = Mirounga angustirostris
P = Phoca vitulina
X = Other
Z = Zalophus californianus

e F (Known Age Class

0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
9-9
9-10
10-11
11-12
12-13
13-14
14-15
15-16
16-17
17-18
18-19
19-20
20-21
21-22
22-23
23-24
24-25

Table G. (Observed Age Class)

A = Adult
J = Juvenile
P = Pup of the year
S = Sub adult
Y = Yearling

e H (Party Leader

= Brent Stewart (Hubbs-Marine Research Institute)
= Carolyn Heath (UCSC)
= Chuck Oliver (SWFC)
= Darrel Boness (National Zoo)
= Dana Segars (SWR)
= Doug DeMaster SWFC
= Bud Antonelis (NMML)
= Harriet Huber (PRBO)
= Jim Bodtkin (USFWS) Added Nov. 1984
= Jim B. Bishop (MMC) Added July 1984
= Jeannie Wexler
= Jim Lecky (SWR)
= John Francis (UCSC)
= Ken Nicolson (Moss Landing)
= Larry Hansen (SWFC)
= Lisa Ferm (SWFC)
= Mark Lowry (SWFC)
= Peter Howarth (MMC)
= Pam Yochem (Hubbs-Marine Research Institute)
= Ron Jameson (USFWS)
= Bob DeLong (NMML)
= Sarah Allen (PRBO) Added Mar. 1985
= Sandy Hawes (SWFC)
= Tim Gerrodette (SWFC)

Table I (Tag Condition)

B = Broken (numbers missing)
C = Chipped (numbers not affected)
F = Faded
G = Good (can be easily read)
I = Illegible
N = New (used when first placing)
P = Poor (can be read with difficulty)

Code Table J (Other Marks)

B = Bleach
D = Dye
H = Hot Brand
P = Paint
R = Radio Tag
X = Other (describe in comments)

Table K (Animal Condition)

NMFS	Hubbs
D = Dead	
F = Fair	2
G = Good	3-4
P = Poor	1

Table L (Association Code)

1 = Lone animal
2 = With other pup(s)
3 = With females(s)
4 = Weaned pup
5 = Abandoned pup
6 = Copulating
7 = Female with its pup (in harem if Mirounga)
8 = Animal with others of all classes
9 = With females and pups (After June 1984)
10 = With other yearlings or juveniles (Added Jan. 1985)

Table M (Most Stage)

1 = 0 - 25%
2 = 26 - 50%
3 = 51 - 75%
4 = 76 - 100%
5 = Molting (unknown amount)

Table N (Behavior)

01 = Resting alone
02 = Resting with female
03 = Resting with other juveniles
04 = Grooming alone
05 = Grooming with female
06 = Grooming with other juvenile(s)
07 = Suckling
08 = Interacting with male
09 = Interacting with female
10 = Interacting with juvenile(s)
11 = Interacting with pup
12 = Upright with female
13 = Upright with juvenile(s)
14 = Upright with pup
15 = Moving with female
16 = Moving in general
17 = Mock copulatory
18 = Mock fight
19 = Going to sea
20 = Returning from sea
21 = Resting with group
22 = Goes to sea with female
23 = Returns from sea with female
24 = Moving with female
25 = Upright with group
26 = Grooming with group
27 = Resting with pup(s) (After June 1984)
28 = Resting with Mirounga (After June 1985)
40 = In water
Blanks = Don't know

APPENDIX II
DATA VARIABLE SPECIFICATIONS FOR THE 1985 PINNIPED TAG/RESIGHT CODING FORMAT
Record 1 of 3

Variable Name	Card Column	Char. Type	Blank O.K.?	Range Lower	Range Upper
1st Digit-Key Tag No.	1	N or A	N	A	Z
				0	9
2nd,3rd,4th Digits-Key Tag No.	2-4	N	N	000	999
Tag Color-Key Tag No.	5	A	N	B	Y
Tag Type-Key Tag No.	6-7	A	N	ML	XX
Card Number 1 of 3	8	N	N	1	1
Date of Event					
Year - Date*	9-10	N	N	84	85
Month - Date	11-12	N	N	1	12
Day - Date	13-14	N	N	1	31
Time of Event					
Hours - Local Time	15-16	N	Y	05	20
Minutes - Local Time	17-18	N	Y	00	59
SWFC AREA	19-21	N	Y	001	023
BLM AREA	22-24	N	Y	001	999
Position of Event					
Degrees - Latitude	25-26	N	Y	32	38
Minutes - Latitude	27-28	N	Y	00	59
Seconds - Latitude	29-30	N	Y	00	59
North or South Hemisphere	31	N	Y	1	1
Degrees - Longitude	32-34	N	Y	117	124
Minutes - Longitude	35-36	N	Y	00	59
Seconds - Longitude	37-38	N	Y	00	59
East or West Hemisphere	39	N	Y	2	2
Species Code	40	A	N	A	Z
Known Age Class	41-42	N	Y	01	25
Observed Age Class	43	A	Y	A	Y
Sex	44	A	Y	F	M
Tag or Resight	45	A	N	R	T
Party Leader	46-48	A	Y	AAA	ZZZ
LEFT FLIPPER:					
Tag Present?	49	A	Y	N	Y
1st Digit-Tag No.	50	N or A	Y	A	Z
				0	9
2nd,3rd,4th Digit-Tag No.	51-53	N	Y	000	999
Tag Color	54	A	Y	B	Y
Tag Type	55-56	A	Y	ML	XX
Tag Condition	57	A	Y	B	P
RIGHT FLIPPER:					
Tag Present?	58	A	Y	N	Y
1st Digit-Tag No.	59	N or A	Y	A	Z
				0	9
2nd,3rd,4th Digit-Tag No.	60-62	N	Y	000	999
Tag Color	63	A	Y	B	Y
Tag Type	64-65	A	Y	ML	XX
Tag Condition	66	A	Y	B	P

*Previous lower ranges have been 75-83

A = Alpha B = Blank N = Numeric

APPENDIX II

DATA VARIABLE SPECIFICATIONS FOR THE 1985 PINNIPED TAG/RESIGHT CODING FORMAT
Record 1 of 3 (Continued)

Variable Name	Card Column	Char. Type	Blank O.K.?	Range Lower	Range Upper
Marks Present?	67	A	Y	N	Y
Type of Marks	68-69	A	Y	B	X
Frequency of Marks	70-72	N	Y	001	999
Mark Shape	73-76	A	Y	AAAA	ZZZZ
				0	9
Condition of Animal	77	A	Y	D	P
Molt Stage	78	N	Y	1	5
Association	79-80	N	Y	1	10

A = Alpha B = Blank N = Numeric

APPENDIX II

DATA VARIABLE SPECIFICATIONS FOR THE 1985
PINNIPED TAG/RESIGHT CODING FORMAT
Record 2 of 3

Variable Name	Card Column	Char. Type	Blank O.K.?	Range Lower	Range Upper
1st Digit-Key Tag No.	1	N or A	N	A 0	Z 9
2nd,3rd,4th Digits-Key Tag No.	2-4	N	N	000	999
Tag Color-Key Tag No.	5	A	N	B	Y
Tag Type-Key Tag No.	6-7	A	N	ML	XX
Card Number 2 of 3	8	N	N	2	2
Date of Event					
Year - Date*	9-10	N	N	84	85
Month - Date	11-12	N	N	1	12
Day - Date	13-14	N	N	1	31
Time of Event					
Hours - Local Time	15-16	N	Y	05	20
Minutes - Local Time	17-18	N	Y	00	59
Beaufort	19	N	Y	0	9
Cloud Cover	20	A	Y	C	R
Photos Taken?	21	A	Y	N	Y
MMPA Permit Number	22-25	N	Y	150	450
Behavior	26-27	N	Y	01	40
Standard Length	28-31	N	Y	20	5000
Standard Length Units	32-33	A	Y	CM	IN
Axillary Girth	34-37	N	Y	15	100
Axillary Girth Units	38-39	A	Y	CM	IN
Weight-Integer 3	40-42	N	Y	010	300
Weight-1 Decimal Value	43	N	Y	0	9
Weight Units	44-45	A	Y	KG	LB
Comments Number 1	46-80	A	Y		

*Previous lower ranges have been 75-83

A = Alpha B = Blank N = Numeric

APPENDIX II

DATA VARIABLE SPECIFICATIONS FOR THE 1985
PINNIPED TAG/RESIGHT CODING FORMAT
Record 3 of 3

Variable Name	Card Column	Char. Type	Blank O.K.?	Range Lower	Range Upper
1st Digit-Key Tag No.	1	N or A	N	A 0	Z 9
2nd,3rd,4th Digits-Key Tag No.	2-4	N	N	000	999
Tag Color-Key Tag No.	5	A	N	B	Y
Tag Type-Key Tag No.	6-7	A	N	ML	XX
Card Number 3 of 3	8	N	N	3	3
Date of Event					
Year - Date*	9-10	N	N	84	85
Month - Date	11-12	N	N	1	12
Day - Date	13-14	N	N	1	31
Time of Event					
Hours - Local Time	15-16	N	Y	05	20
Minutes - Local Time	17-18	N	Y	00	59
Comments Number 2	19-80	A	Y		

*Previous lower ranges have been 75-83

A = Alpha B = Blank N = Numeric

APPENDIX III. DATA DICTIONARY

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DEFINE DOMAIN STACDOM USING STACREC ON STACDR.DAT;
DEFINE RECORD STACREC USING
01 STACREC.
   05 KEY-DATE-TIME.
      10 KEY-NUM-COL-TYP.
         15 KEY-NUM-COL.
            20 KEY-NUM            PIC X(4).
            20 KEY-COLOR          PIC X(1).
         15 KEY-TYPE              PIC X(2).
      10 DATE.
         15 YEAR                  PIC X(2).
         15 MONTH                 PIC X(2).
         15 DAY                   PIC X(2).
      10 TIME-OF-EVENT.
         15 HR-EVENT              PIC X(2).
         15 MIN-EVENT             PIC X(2).
   05 FILLER                      PIC X(1).
   05 SWFC-AREA                   PIC X(3).
   05 BLM-AREA                    PIC X(3).
   05 POSITION-DMS.
      10 LATITUDE-DMS.
         15 LATD                  PIC X(2).
         15 LATM                  PIC X(2).
         15 LATS                  PIC X(2).
      10 N-OR-S                   PIC X(1).
      10 LONGITUDE-DMS.
         15 LONGD                 PIC X(3).
         15 LONGM                 PIC X(2).
         15 LONGS                 PIC X(2).
      10 E-OR-W                   PIC X(1).
   05 SPECIES-CODE                PIC X(1).
   05 KNOWN-AGE                   PIC X(2).
   05 OBS-AGE                     PIC X(1).
   05 SEX                         PIC X(1).
   05 TAG-RESIGHT                 PIC X(1).
   05 LEADER                      PIC X(3).
   05 L-FLIP-PRES                 PIC X(1).
   05 L-FLIP.
      10 L-FLIP-NUM               PIC X(4).
      10 L-FLIP-COLOR             PIC X(1).
      10 L-FLIP-TYPE              PIC X(2).
      10 L-FLIP-COND              PIC X(1).
   05 R-FLIP-PRES                 PIC X(1).
   05 R-FLIP.
      10 R-FLIP-NUM               PIC X(4).
      10 R-FLIP-COLOR             PIC X(1).
      10 R-FLIP-TYPE              PIC X(2).
      10 R-FLIP-COND              PIC X(1).
   05 MARK-PRES                   PIC X(1).
   05 MARK-TYPE                   PIC X(2).
   05 MARK-FREQ                   PIC X(3).
   05 MARK-SHAPE                  PIC X(4).
   05 CONDITION                   PIC X(1).
   05 MOLT-STAGE                  PIC X(1).
   05 ASSOC-CODE                  PIC X(2).
   05 FILLER                      PIC X(1).
   05 BEAUFORT                    PIC X(1).
   05 CLOUDS                      PIC X(1).
   05 PHOTOS                      PIC X(1).
   05 PERMIT                      PIC X(4).
   05 BEHAVIOR                    PIC X(2).
   05 LENGTH                      PIC X(4).
   05 LENGTH-TYPE                 PIC X(2).
   05 GIRTH                       PIC X(4).
   05 GIRTH-TYPE                  PIC X(2).
   05 WEIGHT                      PIC X(4).
   05 N-WEIGHT REDEFINES WEIGHT   PIC 9(3)V9(1).
   05 WEIGHT-TYPE                 PIC X(2).
   05 COMMENT-1                   PIC X(35).
   05 FILLER                      PIC X(1).
   05 COMMENT-2                   PIC X(62).
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